

# NANTICOKE WATER CHEMISTRY

1978

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Ministry  
of the  
Environment

The Honourable  
Harry C. Parrott, D.D.S.,  
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Deputy Minister

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Ministry of The Environment

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## Summary

During 1978, water quality parameters were surveyed 9 times at 11 stations near Nanticoke in Lake Erie. The data from these surveys are presented and analyzed in this report, together with an analysis of long-term changes over the period 1969-1978. Continuing a pattern evident over the 10 year sampling period, measurements were usually homogeneous over the study area, but demonstrated significant changes through time. Phytoplankton maxima in June and later August to September were accompanied by decreases in nutrient levels. Nutrients increased once more when the phytoplankton peaks dropped off in July and October, causing reductions in uptake levels.

Long-term trend analysis was performed on seasonally adjusted data for the period 1969-1978 and showed decreases in the levels of most parameters. Exceptions were increases in total nitrogen, nitrates plus nitrites, and phytoplankton numbers. Dissolved oxygen, pH, Kjeldahl nitrogen and water level showed no significant changes over the period. Marked decreases were evident in ammonia, tending to balance the increase in nitrates and nitrites, and in dissolved phosphorus. Long-term changes were somewhat more extreme at offshore stations (numbers 112, 501, and 648) than at nearshore stations (994, 1008/1041-1042, 1016, 1040, 810 and 518).

## Introduction

The 1978 season was the tenth of uninterrupted water quality monitoring in the Nanticoke area of Lake Erie. During 1978, samples were taken on 9 dates and analyzed for 21 water quality parameters. This report presents the data for 1978 with an analysis of long-term trends in the ten-year data base.

## Survey Operation

Stations monitored in 1976 and 1977 were also used in 1978. In addition, three stations were added (1085, 1086, and 1087), to determine baseline concentrations to monitor future discharges from the Steel Company of Canada plant at Centre Creek; those stations were, however, omitted from the long-term trend analysis and analysis of variance. The locations of all sampling stations are shown in Figure 1. Shallow stations (518, 1040 and 1042) were sampled at mid-depth, while all others were sampled at one meter below the surface and one meter above the bottom. Temperature and dissolved oxygen were measured in situ and all other analyses were performed at the Ministry of the Environment's laboratory in Toronto.

## Analysis of Data

Mean values of all parameters by station and depth appear as Table 1 of this report; the same data by date are presented as Table 2. Appendix 1 contains tabular summaries of all data showing both sampling dates and stations.

A two-way analysis of variance was performed to determine if between-date and between-station differences were significant. The results of that analysis are summarized in Table 3. In general, and as in previous years, most parameters are spatially homogeneous but vary with the season (95% significance level). With respect to spatial differences, the exceptions are surface measurements of turbidity and the sum of nitrate and nitrite, surface and bottom measurements of conductivity, and Secchi disk depth.

Deeper stations (112, 501, and 648), show lower conductivities, deeper Secchi disk depths and lower surface values of  $\text{NO}_2^- + \text{NO}_3^-$ ; this pattern also appears in earlier years. Time variation is found in all factors except the surface and bottom measurements of  $\text{BOD}_5$ , pH, and suspended solids; total iron in surface samples; and turbidity, total phosphorus and ammonia in bottom samples. The small overall variation in these parameters at all depths, together with the relative insulation of bottom waters, probably accounts for this apparent lack of temporal variation.

In order to compare changes in several key factors over the 10-year period, 10-year averages of the data were converted to dimensionless form by the formula:

$$Ar = \frac{(A - A_{\min})}{(A_{\max} - A_{\min})}$$

where A is the mean value of a water quality parameter at a certain month, and  $A_{\min}$  and  $A_{\max}$  are the minimum and maximum average values of the parameter throughout the year. In this way, the data are converted to values that vary between 0 and 1; Figure 2 shows the average seasonal changes over the period 1969-1978 for conductivity, total phosphorus, total nitrogen, turbidity, dissolved oxygen, and phytoplankton numbers. The phytoplankton values are highest in July and October-November. When the phytoplankton is most abundant, nutrient uptake levels are highest; peaks in phytoplankton are accompanied by very low levels in phosphorus and nitrogen, which recover as the plankton levels fall.

The long-term trend analysis (assuming a linear trend) which was performed in previous years was continued in 1978. As in 1976 and 1977, data for station 1008, which was discontinued in 1975, were replaced by the averages for stations 1041 and 1042 combined. A description of data manipulation for this analysis can be found in Polak (1978). Briefly, seasonal trends were removed from the data and the seasonally adjusted values then analyzed for long-term trends over the 10-year period.

Results of the analysis are presented in Table 4 and Figure 3. Figure 4 shows the changes in standard deviations in turbidity data which result from the removal of seasonal trends.

As more years' data are added to the long-term trend analysis, greater confidence may be attached to its results as long as the assumption of a linear trend is valid. With a base of 10 years, the 1978 analysis comprises enough data to determine general trends with accuracy. The results from the 1978 analysis closely resemble those from the previous year, suggesting that conclusions drawn then were probably accurate.

As in 1977, decreases were observed in most parameters, average reductions ranging from a fraction of 1 percent per year to over 17 percent per year. Of special interest are the marked declines in Secchi disk depth (an average annual decrease of 3.6%), total phosphorus (1.9%), dissolved (filtered reactive) phosphorus (9.3%), ammonia (17.2%), chlorophyll a (6.7%) and turbidity (4.4%). These values are for all stations pooled; offshore (further than 1 km from shore) stations show greater decreases in total phosphorus (4.6%), dissolved phosphorus (11.7%) and turbidity (11.5%). Nearshore stations (less than 1 km from shore) demonstrate consistently smaller decreases: Secchi disk depth 2.5%; total phosphorus 0.7%; dissolved phosphorus 7.5%; ammonia 14.8%; chlorophyll a 9.01%; and turbidity 2.9%.

Parameters which exhibit average annual increases are limited to total nitrogen (2.0%), the sum of nitrate plus nitrite (10.4%) and phytoplankton crop (3.9%). In this case, changes are less extreme at offshore stations for total nitrogen (1.4%) and phytoplankton crop (2.6%). Nearshore changes are greater for all three parameters: total nitrogen (2.3%),  $\text{NO}_2^- + \text{NO}_3^-$  (10.5%) and phytoplankton crop (4.3%).

Certain parameters show no significant change overall. For all stations combined and for offshore stations alone, these are dissolved oxygen, pH, Kjeldahl nitrogen and water level. In nearshore samples, total phosphorus and chlorophyll a also show no significant change.

Actual annual averages for the six key parameters shown in Figure 2 are given in Table 5. These data clarify problems which arose in interpretation of the 1977 data. The decrease in conductivity which was apparent from 1969 to 1975 was countered by a small increase over 1976-1977. However, the fact that in 1978, the value is the lowest yet suggests that the 1976-1977 increase may have been a transitory one. The average annual decline in chloride is 3%, which may account for the decline in conductivity.

Both total nitrogen and phytoplankton crop show marked increases from 1977 to 1978; these changes, as well, may be related.

### Conclusion

The 1978 data do not change the trends calculated over the past several years. Significant long-term increases are evident only for three parameters: total nitrogen, the sum of nitrate plus nitrite, and phytoplankton crop. Most other parameters show decreases; exceptions are dissolved oxygen, pH, Kjeldahl nitrogen and water level, which show no significant change. At nearshore stations, total phosphorus and chlorophyll a also show no change on the average.

The factors which are increasing are undoubtedly related and may have been moderated by the decrease in ammonia. Offshore, dilution of total and dissolved phosphorus is apparent. Reductions in Secchi disk depth and turbidity are evident at all stations, although they are somewhat more marked at offshore locations. (The normal expectation is that Secchi disk depth decreases with increased turbidity, phytoplankton numbers and chlorophyll. The relationship observed here between Secchi disk depth and phytoplankton abundance is therefore understandable, but the associated decreases in turbidity and chlorophyll a cannot be explained at this time).

In general, the 1978 data show spatial and temporal patterns similar to those observed at Nanticoke since 1969.

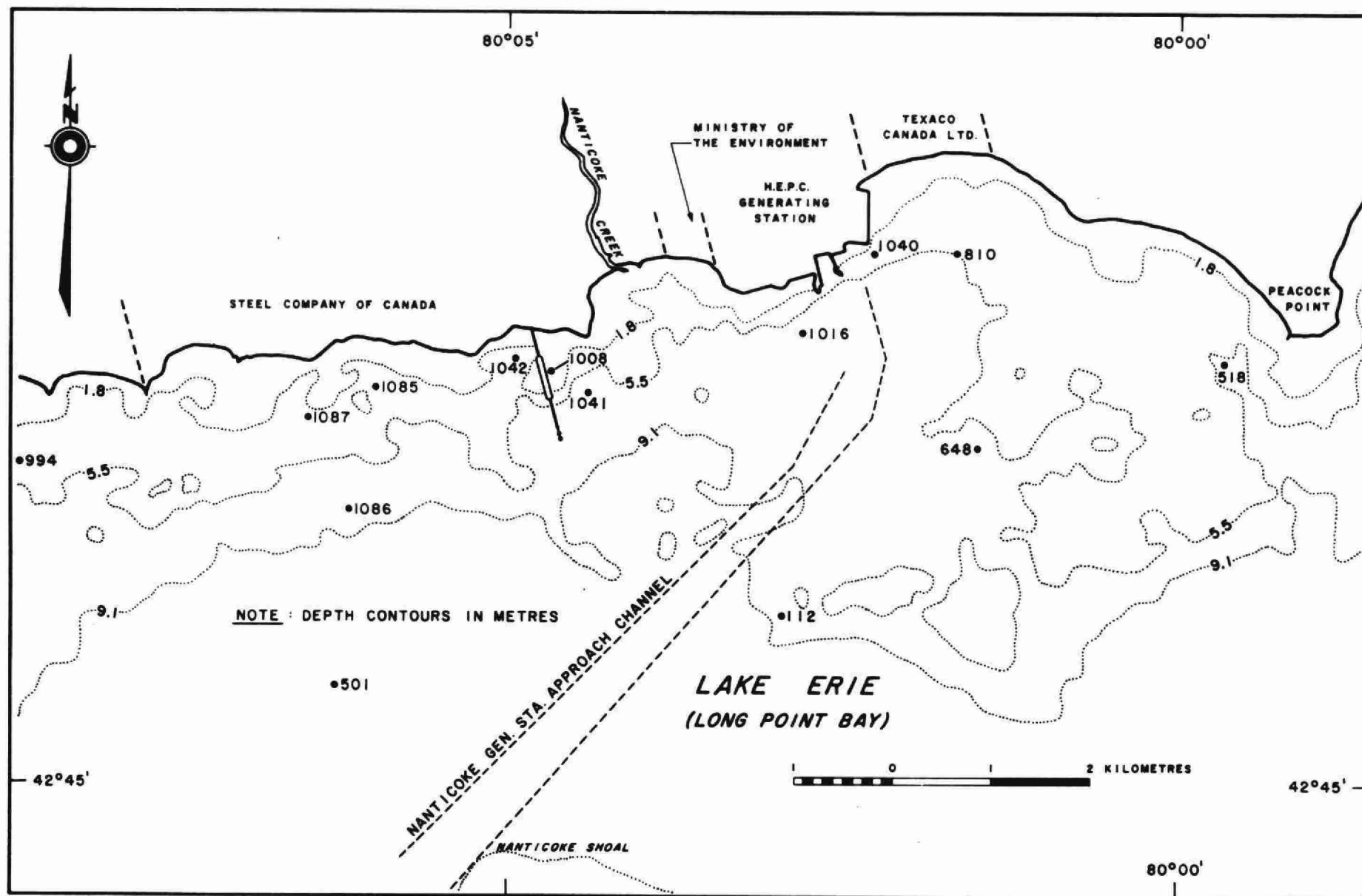


FIGURE 1 - 1978 NANTICOKE SAMPLING STATIONS.

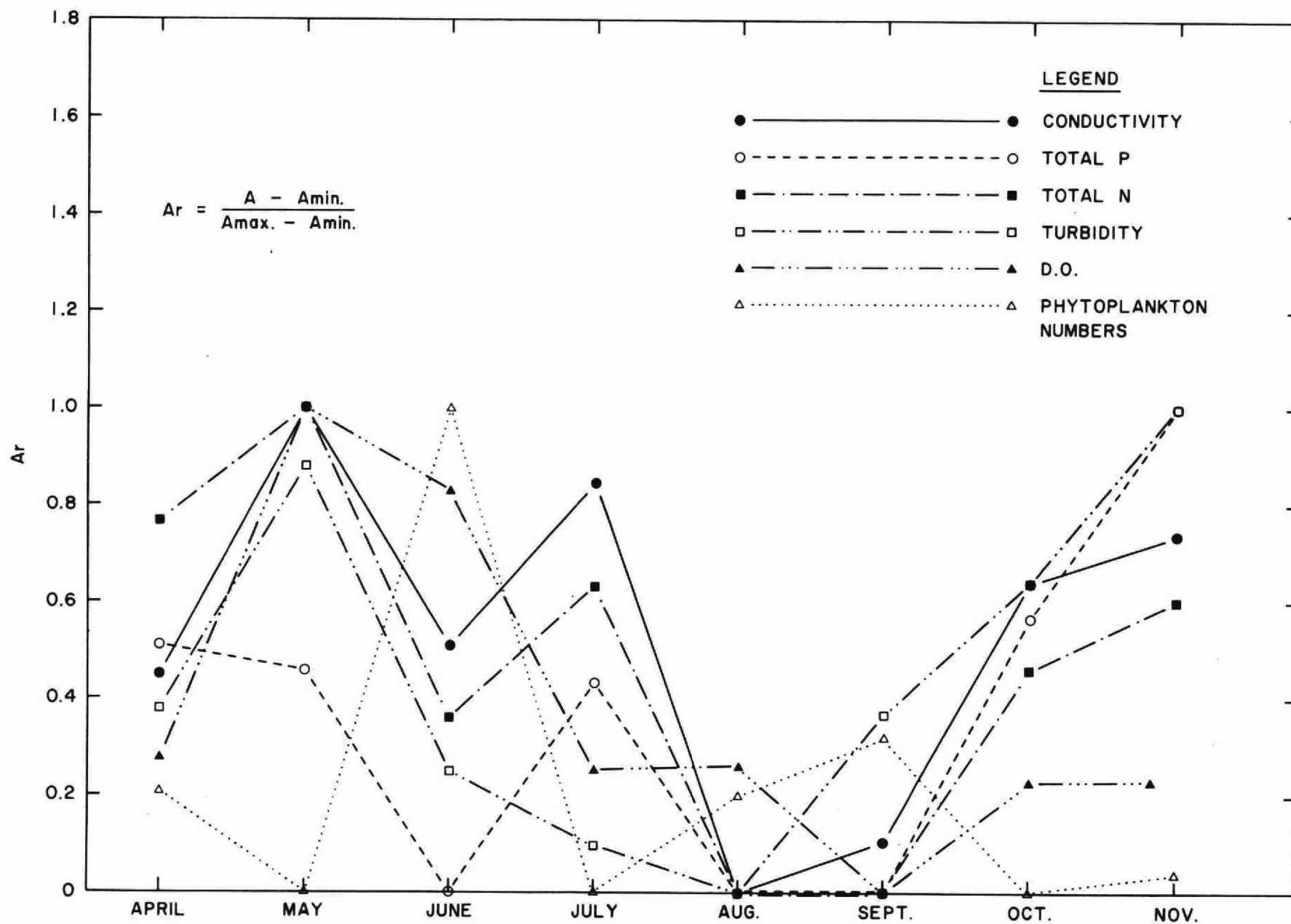


FIGURE 2 - NANTICOKE-LAKE ERIE SEASONAL VARIATION-AVERAGES, 1969-1978, ALL STATIONS.

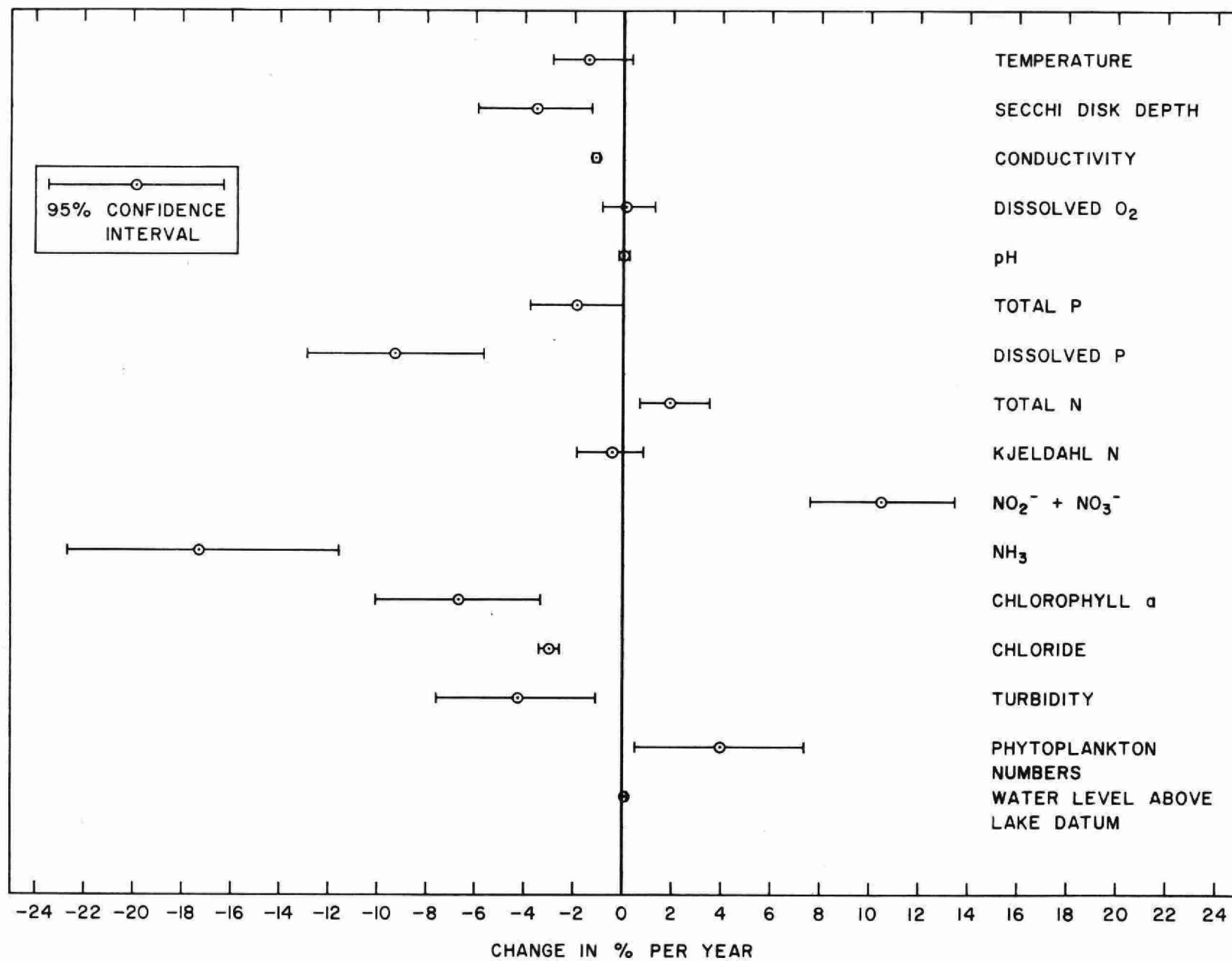


FIGURE 3 - NANTICOKE-LAKE ERIE LONG-TERM CHANGES, 1969-1978, ALL STATIONS.



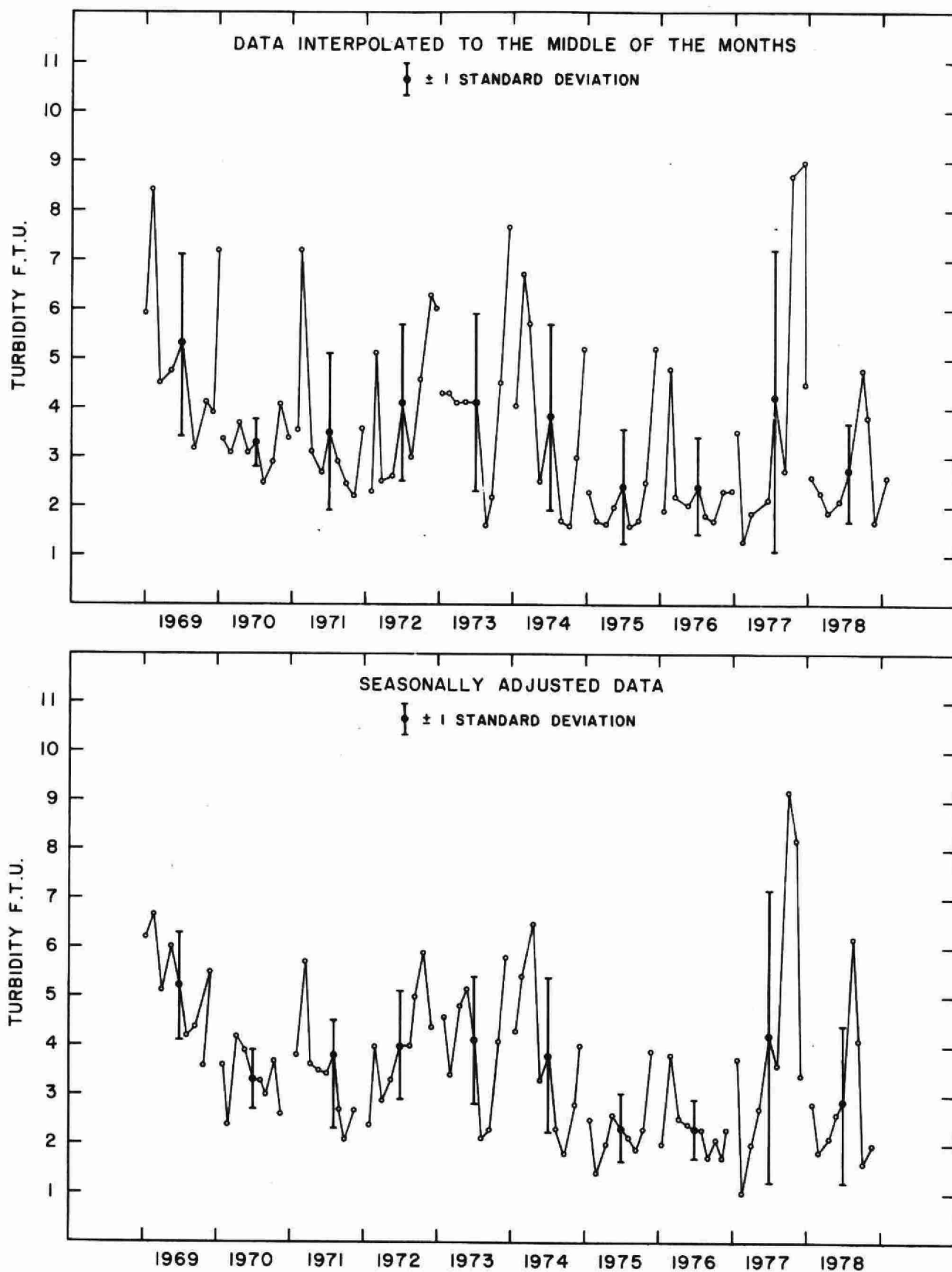


FIGURE 4 - COMPARISON OF RAW AND SEASONALLY ADJUSTED TURBIDITY, NANTICOKE 1969-1978, ALL STATIONS.

TABLE 1

Summary of Results, Mean Value per Station, 1978 - Nanticoke Water Chemistry

Station	Temp.	BOD <sub>5</sub>	Cond	Turb	pH	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	Susp Solids	Total Alk	Si	Secck disk	Diss O <sub>2</sub>	Diss O <sub>2</sub>	Total Fe	Total P	Filt Reac P	Total Kjeld N	Filt NO <sub>2</sub> <sup>-</sup> + NO <sub>3</sub>	Filt NH <sub>3</sub> as N	Chlorophyll <u>a</u>	Chlorophyll <u>b</u>
	oC	mg/L	us/cm	FTU	SU	mg/L	mg/L	mg/L	mg/L	mg/L	m	mg/L	% sat'n	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L
112 s	12.7	0.2	291.	2.0	8.1	20.5	25.7	1.7	-	0.14	3.4	11.0	98	0.04	0.012	0.004	0.33	0.152	0.012	2.0	0.4
b	11.0	0.2	292.	2.5	8.2	20.6	25.8	3.3	-	0.16	-	10.8	91	0.05	0.013	0.003	0.27	0.171	0.011	-	-
501 s	12.8	0.2	291.	2.0	8.2	20.4	25.8	1.0	97.7	0.14	3.7	11.0	99	0.05	0.011	0.003	0.32	0.152	0.010	2.2	0.4
b	10.0	0.2	292.	2.2	8.1	20.3	25.7	2.0	-	0.19	-	11.0	90	0.09	0.012	0.004	0.31	0.186	0.018	-	-
518 s	12.5	0.2	292.	2.3	8.0	20.3	26.2	2.7	-	0.14	2.3	10.9	100	0.05	0.014	0.003	0.35	0.166	0.010	2.4	0.4
648 s	12.8	0.2	291.	1.7	8.0	20.4	25.8	1.7	-	0.16	3.3	10.9	99	0.05	0.009	0.003	0.32	0.156	0.013	2.1	0.4
b	11.9	0.2	292.	1.9	8.2	20.5	25.7	2.0	-	0.17	-	10.9	95	0.09	0.011	0.003	0.28	0.159	0.009	-	-
810 s	12.9	0.2	294	3.0	8.3	20.9	26.5	3.0	-	0.15	1.9	10.9	99	0.08	0.015	0.003	0.36	0.175	0.014	2.6	0.4
b	10.9	0.2	292.	2.7	8.0	20.3	25.7	1.7	98.7	0.16	-	11.0	94	0.08	0.013	0.003	0.36	0.175	0.015	-	-
994 s	12.1	0.3	293.	2.2	8.1	20.4	26.3	1.7	99.0	0.17	2.8	11.0	99	0.05	0.012	0.003	0.35	0.167	0.020	2.1	0.4
b	10.5	0.2	293.	2.3	8.1	20.3	26.2	2.7	98.7	0.17	-	11.0	93	0.07	0.021	0.006	0.39	0.181	0.019	-	-
1016 s	12.1	0.2	292.	2.3	8.2	20.5	26.0	2.0	98.3	0.17	2.5	10.9	96	0.09	0.014	0.003	0.46	0.172	0.012	2.5	0.4
b	10.7	0.2	296.	7.4	8.1	20.6	26.0	3.3	98.0	0.17	-	10.9	93	0.05	0.020	0.002	0.42	0.178	0.025	-	-
1040 s	12.6	0.2	294.	2.9	8.2	20.4	26.5	3.7	99.0	0.19	1.7	11.0	99	0.06	0.013	0.003	0.31	0.191	0.013	2.6	0.4
1041 s	11.9	0.2	293.	3.0	8.1	20.4	26.3	3.0	99.7	0.16	2.3	10.9	97	0.11	0.014	0.002	0.37	0.177	0.009	2.6	0.5
b	10.6	0.2	296.	8.5	8.1	20.4	26.5	8.7	99.0	0.19	-	10.9	93	0.17	0.025	0.004	0.35	0.185	0.014	-	-
1042 s	11.8	0.3	296.	3.3	8.2	20.7	26.5	3.3	99.3	0.20	2.1	10.9	98	0.12	0.014	0.002	0.28	0.185	0.012	2.7	0.12

TABLE 2

## Summary of Results, Mean Value by Date, 1978 - Nanticoke Water Chemistry

Date	Temp.		BOD <sub>5</sub>	Cond	Turb	pH	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	Susp Solids	Total Alk	Si	Seccdisk	Diss O <sub>2</sub>	Diss O <sub>2</sub>	Total Fe	Total P	Filt Reac P	Total Kjeld N	Filt NO <sub>2</sub> + NO <sub>3</sub>	Filt NH <sub>3</sub> as N	Chlorophyll	
	°C	mg/L			FTU	SU	mg/L	mg/L	mg/L	mg/L	mg/L	m	mg/L	% sat'n	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	a	b
Apr 25	s	5.1	0.2	297.	2.5	8.2	19.5	27.5	2.0	96.5	0.18	2.4	13.5	106.	0.09	0.011	.005	0.23	0.22	0.009	2.5	2.5
	b	4.2	0.2	296.	2.6	8.1	19.5	27.2	2.4	96.1	0.17	-	13.7	105.	0.09	0.016	.008	0.23	0.214	0.007	-	-
May 15	s	-	-	291.	2.3	-	19.7	-	-	-	0.13	2.3	-	-	-	0.012	.003	0.32	0.158	0.005	1.6	0.3
	b	-	-	291.	2.2	-	19.6	-	-	-	0.15	-	-	-	-	0.019	.006	0.41	0.159	0.012	-	-
Jun 5	s	9.4	0.2	290.	1.6	8.2	20.0	25.9	2.8	-	0.09	2.7	12.4	108.	0.05	0.014	.001	0.27	0.140	0.004	3.5	0.1
	b	6.2	0.2	290.	2.4	8.1	20.0	25.6	5.1	-	0.11	-	12.5	101.	0.07	0.014	.002	0.27	0.160	0.008	-	-
Jul 17	s	19.5	-	285.	1.8	-	20.3	-	-	-	0.18	3.4	9.5	102.	0.05	0.011	.001	0.34	0.124	0.017	1.9	0.3
	b	14.1	-	289.	2.3	-	20.0	-	-	-	0.19	-	9.3	90.	0.05	0.015	.003	0.37	0.179	0.021	-	-
Aug 14	s	22.4	-	290.	1.5	-	21.4	-	-	-	0.10	4.9	-	-	-	0.016	.002	0.62	0.098	0.015	1.3	0.5
	b	20.0	-	294.	11.7	-	21.3	-	-	-	0.16	-	-	-	-	0.032	.001	0.49	0.114	0.019	-	-
Sep 19	s	18.5	-	289.	3.8	-	20.3	-	-	-	0.21	1.8	-	-	-	0.015	.003	0.35	0.113	0.023	2.2	0.4
	b	18.1	-	288.	4.2	-	20.1	-	-	-	0.20	-	-	-	-	0.011	.002	0.29	0.107	0.029	-	-
Oct 11	s	11.6	0.2	294.	1.4	8.1	21.0	25.0	2.3	97.5	0.29	2.9	8.4	77.	0.08	0.008	.002	0.23	0.225	0.007	2.1	0.5
	b	11.4	0.2	295.	2.0	8.1	21.1	25.0	2.6	97.9	0.31	-	8.3	76.	0.15	0.009	.003	0.22	0.230	0.010	-	-
Oct 30	s	9.6	-	303.	2.2	-	21.0	-	-	-	0.17	1.9	8.3	-	-	0.010	.002	0.32	0.234	0.011	3.3	0.6
	b	8.8	-	301.	2.5	-	21.0	-	-	-	0.16	-	-	-	-	0.011	.003	0.34	0.234	0.013	-	-
Dec 12	s	3.5	-	298.	5.0	-	21.1	-	-	-	0.09	1.1	-	-	-	0.018	.006	0.41	0.216	0.023	2.9	0.5
	b	3.6	-	297.	5.4	-	21.2	-	-	-	0.09	-	-	-	-	0.020	.007	0.44	0.199	0.028	-	-

TABLE 3

## Two-way Analysis of Variance, Nanticoke 1976

Parameter		Between Dates		Between Stations	
		F <sub>10,8</sub>	Significance	F <sub>8,10</sub>	Significance*
Water Temperature	s	447.82	S.D.	1.21	N.S.D.
	b	256.21	S.D.	2.47	N.S.D.
BOD mg/L	s	1.52	N.S.D.	0.53	N.S.D.
	b	1.00	N.S.D.	1.00	N.S.D.
Conductivity	s	34.71	S.D.	3.71	S.D.
	b	14.93	S.D.	4.61	S.D.
Turbidity	s	32.25	S.D.	5.48	S.D.
	b	2.06	N.S.D.	2.08	N.S.D.
pH	s	1.49	N.S.D.	0.63	N.S.D.
	b	1.63	N.S.D.	0.79	N.S.D.
Chloride mg/L	s	11.76	S.D.	0.81	N.S.D.
	b	64.44	S.D.	2.03	N.S.D.
Sulphate mg/L	s	42.13	S.D.	1.02	N.S.D.
	b	44.10	S.D.	1.89	N.S.D.
Suspended Solids	s	1.11	N.S.D.	2.09	N.S.D.
mg/L	b	1.12	N.S.D.	1.61	N.S.D.
Total Alkalinity	s	7.82	S.D.	0.90	N.S.D.
	b	4.93	S.D.	0.81	N.S.D.
Reactive Si	s	21.41	S.D.	1.83	N.S.D.
	b	12.73	S.D.	0.71	N.S.D.
Secchi Disk	-	30.72	S.D.	10.53	S.D.
Dissolved Oxygen	s	1870.29	S.D.	0.19	N.S.D.
mg/L	b	783.85	S.D.	0.38	N.S.D.
Dissolved Oxygen	s	203.36	S.D.	0.41	N.S.D.
% Saturation	b	180.87	S.D.	2.68	N.S.D.
Total P	s	5.02	S.D.	1.31	N.S.D.
	b	1.85	N.S.D.	1.53	N.S.D.
Filtered Reactive P	s	14.70	S.D.	0.72	N.S.D.
	b	3.88	S.D.	1.46	N.S.D.
Total Kjeldahl N	s	6.33	S.D.	0.98	N.S.D.
	b	4.17	S.D.	1.72	N.S.D.
Filtered NO <sub>2</sub> +	s	85.22	S.D.	5.05	S.D.
NO <sub>3</sub> +	b	57.00	S.D.	2.20	N.S.D.
Filtered NH <sub>3</sub> as N	s	10.7	S.D.	1.30	N.S.D.
	b	2.76	N.S.D.	1.24	N.S.D.
Chlorophyll a	s	24.53	S.D.	2.86	N.S.D.
Chlorophyll b	s	17.99	S.D.	1.14	N.S.D.
Total Fe	s	1.18	N.S.D.	1.05	N.S.D.
	b	3.70	S.D.	2.57	N.S.D.

Tested at 0.05 probability. Table values of 3.35 = F 10, 8  
and 3.07 = F 8, 10

Tested at 95 % confidence level S.D. means significant difference  
N.S.D. means no significant difference

s... sample from 1 m below surface  
b... sample collected 1 m off bottom

TABLE 4

## LONG-TERM CHANGE OF THE PHYSICO-CHEMICAL PARAMETERS, NANTICOKE, 1969-1978

Parameter	Average Value			Average Change in % per year									Significance Trend*					
	All Stations	Nearshore Stations	Offshore Stations	Mean			Min			Max								
				ALL	N	O	ALL	N	O	ALL	N	O	ALL	N	O	ALL	N	O
Conductivity us/cm	309.5 $\pm$ 1.2	309.9 $\pm$ 1.2	308.7 $\pm$ 1.1	-1.1	-1.1	-1.1	-1.28	-1.28	-1.25	-1.0	-1.0	-0.99	S	S	S	D	D	D
Total P mg/L	0.017 $\pm$ .001	0.018 $\pm$ 0.001	0.015 $\pm$ .007	-1.89	-0.7	-4.6	-3.8	-2.95	-6.2	0.0	1.55	-3.0	S	S	S	D	D	D
Total N mg/L	0.405 $\pm$ .015	0.416 $\pm$ .015	0.385 $\pm$ .015	1.95	2.3	1.4	0.66	1.0	0.05	3.25	3.59	2.78	S	S	S	I	I	I
pH	8.22 $\pm$ 0.05	8.21 $\pm$ 0.05	8.24 $\pm$ 0.05	-0.0	0.0	0.0	-0.12	-0.19	-0.25	0.20	0.2	0.2	NS	NS	NS	-	-	-
Turbidity FTU	3.56 $\pm$ 0.34	4.12 $\pm$ 0.46	2.51 $\pm$ 0.21	-4.35	-2.85	-11.5	-7.6	-6.7	-14.4	-1.06	1.0	-8.66	S	S	S	D	D	D
Phytoplankton crop ASU/mL	377.3 $\pm$ 37.1	398.8 $\pm$ 40.7	337.3 $\pm$ 33.9	3.9	4.29	2.6	0.5	0.7	0.85	7.35	7.8	6.1	S	S	S	I	I	I
Kjeldahl N mg N/L	0.300 $\pm$ 0.012	0.308 $\pm$ 0.012	0.286 $\pm$ 0.42	-0.56	-0.38	-1.2	-1.9	-1.7	-2.7	0.8	0.95	0.2	NS	NS	S	-	-	D
Chloride mg/L	22.72 $\pm$ 0.23	22.71 $\pm$ 0.25	22.71 $\pm$ 0.20	-3.0	-3.0	-3.0	-3.4	-3.45	-3.38	-2.65	-2.6	-2.7	S	S	S	D	D	D
Dissolved Oxygen	96.9 $\pm$ 3.4	97.1 $\pm$ 3.6	95.7 $\pm$ 3.4	0.17	-0.1	0.38	-0.9	-1.27	-0.7	1.27	1.05	1.47	NS	NS	NS	-	-	-
Dissolved P	.005 $\pm$ .000	.005 $\pm$ .000	.005 $\pm$ .000	-9.3	-7.5	-11.68	-12.9	11.4	-14.9	-5.67	-3.6	-8.46	S	S	S	D	D	D
Ammonia mg N/L	.026 $\pm$ .004	.024 $\pm$ .003	.023 $\pm$ .003	-17.16	-14.76	-16.16	-22.7	-18.87	-20.4	-11.59	-10.6	-11.9	S	S	S	D	D	D
NO <sub>2</sub> +NO <sub>3</sub>	.106 $\pm$ .010	.110 $\pm$ .010	.100 $\pm$ .010	10.4	10.5	10.4	7.57	7.67	7.3	13.2	13.36	13.5	S	S	S	I	I	I
Chlorophyll a ug/L	2.40 $\pm$ 0.21	2.25 $\pm$ 0.18	1.95 $\pm$ 0.16	-6.72	0.01	-0.72	-10.12	-3.40	-4.20	-3.31	3.42	2.76	S	NS	S	D	-	D
Temperature °C	14.7 $\pm$ 0.7	14.7 $\pm$ 0.7	14.5 $\pm$ 0.7	-1.42	1.21	-1.70	-2.98	-2.74	-3.36	-0.14	0.33	-0.05	S	S	S	D	D	D
Secchi disk depth m	2.87 $\pm$ 0.17	2.22 $\pm$ 0.15	3.96 $\pm$ 0.27	3.58	-2.54	-3.56	-5.92	-5.20	-6.16	-1.25	0.11	-0.96	S	S	S	D	D	D
Water Level	174.3 $\pm$ 0.0	174.3 $\pm$ 0.0	174.3 $\pm$ 0.0	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.02	0.02	NS	NS	NS	-	-	-

\*NOTE:

S - Significant Trend

NS - No Significant Trend

I - Increase

D - Decrease

TABLE 5

## ANNUAL AVERAGES FOR SIX KEY PARAMETERS

PARAMETER	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Conductivity (umhos/cm)	325.6	322.0	311.9	322.6	313.0	308.2	299.0	300.9	301.7	290.6
Total Phosphorus (mg/L)	0.020	0.019	0.016	0.014	0.017	0.021	0.015	0.013	0.019	0.014
Total Nitrogen (mg/L)	0.371	0.440	0.350	0.362	0.409	0.416	0.397	0.415	0.383	0.510
Turbidity (FTU)	5.28	3.26	3.48	4.05	4.14	3.84	2.36	2.36	4.21	2.71
Diss. Oxygen (% Saturation)	98.13	97.08	100.50	101.71	-	-	92.24	96.09	103.00	98.63
Phytoplankton crop (ASU/ml)	234.1	531.7	381.2	272.6	418.2	228.0	406.2	311.5	351.1	637.6

## APPENDIX I, TABLE 1, NANTICKE 1978

WATER TEMPERATURE DEG. C

STATION	DEPTH	APR. 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	3.1	****	10.9	19.2	22.2	18.9	12.1	10.0	5.5	12.7	6.82
112	11.0	3.0	****	5.0	14.1	20.3	18.5	12.4	9.6	5.5	11.0	6.40
501	1.0	3.0	****	11.5	20.0	22.8	18.5	12.4	8.9	5.1	12.8	7.14
501	12.0	2.5	****	5.2	11.0	18.9	18.5	11.2	8.0	5.1	10.0	6.11
518	3.0	6.8	****	10.0	19.1	22.1	18.0	12.0	9.5	2.8	12.5	6.63
648	1.0	4.5	****	11.0	18.9	22.3	18.6	12.2	10.0	5.0	12.8	6.57
648	7.0	4.1	****	8.8	16.0	20.9	18.3	12.0	9.9	5.0	11.9	6.10
810	1.0	6.1	****	8.6	19.2	24.0	19.5	12.6	10.8	2.2	12.9	7.47
810	8.0	5.1	****	7.0	14.0	20.1	17.7	12.0	9.0	2.2	10.9	6.21
994	1.0	5.5	****	10.0	20.0	22.0	18.0	10.0	8.5	3.2	12.1	6.97
994	7.0	4.9	****	6.0	15.0	20.1	17.5	9.7	8.0	3.2	10.5	6.25
1016	1.0	5.0	****	7.1	19.2	22.8	18.7	11.2	10.6	2.5	12.1	7.36
1016	9.0	4.9	****	5.5	13.9	19.6	18.5	11.5	9.0	2.5	10.7	6.34
1040	3.0	6.0	****	8.5	19.0	21.9	18.3	12.0	10.0	5.2	12.6	6.35
1041	1.0	5.0	****	8.0	20.0	22.0	18.1	11.0	9.5	2.0	11.9	7.30
1041	9.0	5.0	****	5.8	15.0	19.8	18.0	11.0	8.1	2.0	10.6	6.48
1042	2.0	5.9	****	8.0	20.0	22.1	18.1	10.5	8.2	1.3	11.8	7.44
MEAN	SURFACE	5.1	****	9.4	19.5	22.4	18.5	11.6	9.6	3.5	12.4	6.61
	BOTTOM	4.2	****	6.2	14.1	20.0	18.1	11.4	8.8	3.6	10.8	5.94
ST DEV	SURFACE	1.26	*****	1.51	0.47	0.64	0.48	0.87	0.86	1.57	11.8	6.37
	BOTTOM	1.06	*****	1.32	1.57	0.62	0.42	0.90	0.79	1.51	****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX 1. TABLE 3, NANTICOKE 1978

CONDUCTIVITY AT 25 DEG. C UMHOS/CM

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
112	1.0	294.	290.	290.	285.	290.	285.	290.	300.	295.	291.	4.77
112	11.0	294.	290.	290.	290.	290.	285.	290.	300.	295.	292.	4.25
501	1.0	293.	290.	290.	280.	285.	290.	290.	305.	295.	291.	6.86
501	12.0	293.	290.	290.	290.	290.	285.	295.	300.	295.	292.	4.30
518	3.0	297.	290.	290.	285.	285.	285.	295.	305.	295.	292.	6.77
648	1.0	295.	290.	290.	285.	285.	285.	290.	300.	295.	291.	5.27
648	7.0	295.	290.	290.	290.	290.	285.	295.	300.	295.	292.	4.41
810	1.0	300.	290.	290.	285.	305.	285.	295.	300.	295.	294.	6.97
810	8.0	297.	290.	290.	285.	285.	290.	295.	305.	295.	292.	6.33
994	1.0	297.	290.	290.	285.	290.	295.	295.	300.	295.	293.	4.58
994	7.0	296.	290.	290.	290.	290.	290.	295.	300.	295.	293.	3.72
1016	1.0	296.	***	290.	285.	285.	290.	295.	300.	295.	292.	5.40
1016	9.0	296.	295.	290.	290.	305.	290.	295.	300.	305.	296.	6.00
1040	3.0	299.	290.	290.	285.	285.	290.	300.	305.	305.	294.	8.00
1041	1.0	298.	290.	290.	285.	290.	290.	295.	300.	300.	293.	5.33
1041	9.0	298.	290.	290.	290.	305.	290.	300.	300.	300.	296.	5.88
1042	2.0	300.	295.	290.	285.	295.	290.	295.	310.	305.	296.	7.82
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	SURFACE	297.	291.	290.	285.	290.	289.	294.	303.	298.	293.	6.21
	BOTTOM	296.	291.	290.	289.	294.	288.	295.	301.	297.	293.	5.15
ST DEV	SURFACE	2.43	1.67	0.0	1.58	6.43	3.37	3.16	3.54	4.25	293.	5.78
	BOTTOM	1.72	1.89	0.0	1.89	8.02	2.67	2.89	1.89	3.93	***	*****

\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE



APPENDIX 1, TABLE 4, NANTICKE 1978

TURBIDITY (FORMAZIN UNITS)

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
112	1.0	1.8	1.9	0.9	1.5	1.7	3.1	0.8	2.4	3.9	2.0	1.00
112	11.0	4.5	2.1	1.3	2.0	1.6	2.5	0.9	4.4	3.5	2.5	1.31
501	1.0	1.6	1.4	1.1	0.4	0.7	3.9	0.9	2.4	5.5	2.0	1.69
501	12.0	1.8	2.6	1.3	1.8	2.3	2.5	1.4	1.8	4.4	2.2	0.94
518	3.0	2.7	2.0	1.4	2.1	1.1	3.0	1.5	2.4	4.1	2.3	0.93
648	1.0	1.7	1.8	1.0	1.4	0.8	1.7	0.8	1.8	4.6	1.7	1.15
648	7.0	1.9	1.7	1.3	1.6	1.4	2.5	1.0	1.5	4.0	1.9	0.90
810	1.0	2.7	3.0	1.4	2.1	2.6	6.1	2.5	2.5	4.0	3.0	1.36
810	8.0	2.4	3.1	1.2	2.1	1.7	5.1	1.1	2.5	4.8	2.7	1.44
994	1.0	2.5	1.9	1.5	1.5	0.9	3.5	1.0	1.4	5.3	2.2	1.42
994	7.0	1.9	1.8	1.4	2.7	1.6	1.5	1.1	1.9	6.4	2.3	1.62
1016	1.0	2.1	***	1.6	2.1	1.1	3.7	1.0	2.5	4.0	2.3	1.11
1016	9.0	2.3	2.0	4.4	1.7	42.0	1.2	1.1	2.5	9.0	7.4	13.22
1040	3.0	2.9	3.5	2.1	2.5	0.9	4.0	1.5	1.9	6.6	2.9	1.70
1041	1.0	3.4	2.2	2.3	2.4	2.7	5.5	2.1	1.8	4.4	3.0	1.23
1041	9.0	3.4	1.9	5.6	4.1	31.0	14.0	7.1	3.2	5.9	8.5	9.16
1042	2.0	3.7	3.1	2.6	1.8	2.2	3.4	1.5	3.3	7.9	3.3	1.89
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	SURFACE	2.5	2.3	1.6	1.8	1.5	3.8	1.4	2.2	5.0	2.5	1.41
	BOTTOM	2.6	2.2	2.4	2.3	11.7	4.2	2.0	2.5	5.4	3.9	6.41
ST DEV	SURFACE	0.71	0.71	0.57	0.62	0.77	1.25	0.58	0.53	1.33	3.1	4.31
	BOTTOM	1.00	0.50	1.84	0.88	17.27	4.51	2.27	0.99	1.88	***	*****

\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX 1, TABLE 5, NANTICUKE 1978

PH AT LAB

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
112	1.0	8.1	****	8.2	****	****	****	8.1	****	****	8.1	0.08
112	11.0	8.1	****	8.2	****	****	****	8.3	****	****	8.2	0.07
501	1.0	8.2	****	8.4	****	****	****	8.0	****	****	8.2	0.17
501	12.0	8.0	****	8.1	****	****	****	8.1	****	****	8.1	0.05
518	3.0	8.3	****	8.3	****	****	****	7.5	****	****	8.0	0.45
648	1.0	7.6	****	8.2	****	****	****	8.3	****	****	8.0	0.38
648	7.0	8.3	****	8.1	****	****	****	8.2	****	****	8.2	0.10
810	1.0	8.3	****	8.3	****	****	****	8.3	****	****	8.3	0.03
810	8.0	7.8	****	8.3	****	****	****	8.0	****	****	8.0	0.22
994	1.0	8.2	****	8.3	****	****	****	7.9	****	****	8.1	0.17
994	7.0	8.0	****	8.2	****	****	****	8.0	****	****	8.1	0.09
1016	1.0	8.1	****	8.3	****	****	****	8.2	****	****	8.2	0.08
1016	9.0	7.8	****	8.2	****	****	****	8.3	****	****	8.1	0.22
1040	3.0	8.3	****	8.2	****	****	****	8.1	****	****	8.2	0.11
1041	1.0	8.2	****	8.1	****	****	****	8.2	****	****	8.1	0.05
1041	9.0	8.2	****	8.1	****	****	****	8.1	****	****	8.1	0.09
1042	2.0	8.3	****	8.1	****	****	****	8.3	****	****	8.2	0.08
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	SURFACE	8.2	****	8.2	****	****	****	8.1	****	****	8.2	0.19
	BOTTOM	8.1	****	8.1	****	****	****	8.1	****	****	8.1	0.12
ST DEV	SURFACE	0.21	*****	0.08	*****	*****	*****	0.24	*****	*****	8.1	0.17
	BOTTOM	0.17	*****	0.07	*****	*****	*****	0.10	*****	*****	****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX I, TABLE 6, NANTICOKE 1978

CHLORIDE MG/L

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****												
112	1.0	19.5	20.0	20.0	20.0	21.5	20.5	21.0	21.0	21.0	20.5	0.66
112	11.0	19.5	20.0	20.0	20.0	21.5	20.5	21.0	21.0	21.5	20.6	0.73
-----												
501	1.0	20.0	19.5	20.0	20.0	21.0	20.5	21.0	21.0	21.0	20.4	0.58
501	12.0	19.5	19.5	20.0	20.0	20.5	20.0	21.0	21.0	21.0	20.3	0.62
-----												
518	3.0	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.3	0.66
-----												
648	1.0	19.5	20.0	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.4	0.60
648	7.0	19.5	20.0	20.0	20.0	22.0	20.0	21.0	21.0	21.0	20.5	0.79
-----												
810	1.0	19.5	19.5	20.0	20.0	26.0	20.0	21.0	21.0	21.5	20.9	2.02
810	8.0	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.3	0.66
-----												
994	1.0	19.5	19.5	20.0	20.0	21.0	20.5	21.0	21.0	21.0	20.4	0.65
994	7.0	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.0	20.3	0.66
-----												
1016	1.0	19.5	****	20.0	20.0	20.5	20.5	21.0	21.0	21.5	20.5	0.65
1016	9.0	19.5	19.5	20.0	20.0	21.5	20.5	21.0	21.0	22.0	20.6	0.88
-----												
1040	3.0	19.5	19.5	20.0	20.0	21.0	20.0	21.0	21.0	21.5	20.4	0.74
-----												
1041	1.0	19.5	19.5	20.0	20.0	21.0	20.5	21.0	21.0	21.0	20.4	0.65
1041	9.0	19.5	19.5	20.0	20.0	21.5	20.0	21.5	21.0	21.0	20.4	0.81
-----												
1042	2.0	19.5	20.0	20.0	22.5	20.5	21.0	21.0	21.0	21.0	20.7	0.87
*****												
MEAN	SURFACE	19.5	19.7	20.0	20.3	21.4	20.3	21.0	21.0	21.1	20.5	0.88
	BOTTOM	19.5	19.6	20.0	20.0	21.3	20.1	21.1	21.0	21.2	20.4	0.71
-----												
ST DEV	SURFACE	0.16	0.25	0.0	0.79	1.62	0.34	0.0	0.0	0.24	20.5	0.81
	BOTTOM	0.0	0.24	0.0	0.0	0.49	0.24	0.19	0.0	0.39	****	****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX 1, TABLE 7, NANTICOKE 1978

SULPHATE MG/L

STATION	DEPTH M	APP 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
112	1.0	26.5	****	26.0	****	****	****	24.5	****	****	25.7	1.04
112	11.0	27.0	****	25.5	****	****	****	25.0	****	****	25.8	1.04
501	1.0	26.5	****	26.0	****	****	****	25.0	****	****	25.8	0.76
501	12.0	26.5	****	25.5	****	****	****	25.0	****	****	25.7	0.76
518	3.0	28.0	****	25.5	****	****	****	25.0	****	****	26.2	1.61
648	1.0	27.0	****	25.5	****	****	****	25.0	****	****	25.8	1.04
648	7.0	27.0	****	25.5	****	****	****	24.5	****	****	25.7	1.26
810	1.0	28.5	****	26.0	****	****	****	25.0	****	****	26.5	1.80
810	8.0	27.5	****	25.0	****	****	****	24.5	****	****	25.7	1.61
994	1.0	27.0	****	27.0	****	****	****	25.0	****	****	26.3	1.15
994	7.0	27.0	****	26.0	****	****	****	25.5	****	****	26.2	0.76
1016	1.0	27.5	****	25.5	****	****	****	25.0	****	****	26.0	1.32
1016	9.0	27.5	****	25.5	****	****	****	25.0	****	****	26.0	1.32
1040	3.0	28.5	****	25.5	****	****	****	25.5	****	****	26.5	1.73
1041	1.0	28.0	****	26.0	****	****	****	25.0	****	****	26.3	1.53
1041	9.0	28.0	****	26.0	****	****	****	25.5	****	****	26.5	1.32
1042	2.0	28.0	****	26.5	****	****	****	25.0	****	****	26.5	1.50
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	SURFACE	27.5	****	25.9	****	****	****	25.0	****	****	26.2	1.19
	BOTTOM	27.2	****	25.6	****	****	****	25.0	****	****	25.9	1.04
ST DEV	SURFACE	0.76	*****	0.50	*****	*****	*****	0.24	*****	*****	26.1	1.13
	BOTTOM	0.49	*****	0.35	*****	*****	*****	0.41	*****	*****	****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX 1, TABLE 8, NANTICKE 1978

## SUSPENDED SOLIDS MG/L

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
112	1.0	2.0	****	2.0	****	****	****	1.0	****	****	1.7	0.58
112	11.0	6.0	****	3.0	****	****	****	1.0	****	****	3.3	2.52
501	1.0	1.0	****	1.0	****	****	****	1.0	****	****	1.0	0.0
501	12.0	2.0	****	2.0	****	****	****	2.0	****	****	2.0	0.0
518	3.0	2.0	****	2.0	****	****	****	4.0	****	****	2.7	1.15
648	1.0	2.0	****	2.0	****	****	****	1.0	****	****	1.7	0.58
648	7.0	2.0	****	2.0	****	****	****	2.0	****	****	2.0	0.0
810	1.0	2.0	****	3.0	****	****	****	4.0	****	****	3.0	1.00
810	8.0	2.0	****	3.0	****	****	****	0.0	****	****	1.7	1.53
994	1.0	2.0	****	2.0	****	****	****	1.0	****	****	1.7	0.58
994	7.0	2.0	****	3.0	****	****	****	3.0	****	****	2.7	0.58
1016	1.0	1.0	****	3.0	****	****	****	2.0	****	****	2.0	1.00
1016	9.0	1.0	****	7.0	****	****	****	2.0	****	****	3.3	3.21
1040	3.0	3.0	****	4.0	****	****	****	4.0	****	****	3.7	0.58
1041	1.0	2.0	****	4.0	****	****	****	3.0	****	****	3.0	1.00
1041	9.0	2.0	****	16.0	****	****	****	8.0	****	****	8.7	7.02
1042	2.0	3.0	****	5.0	****	****	****	2.0	****	****	3.3	1.53
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	SURFACE	2.0	****	2.8	****	****	****	2.3	****	****	2.4	1.13
	BOTTOM	2.4	****	5.1	****	****	****	2.6	****	****	3.4	3.49
ST DEV	SURFACE	0.67	*****	1.23	*****	*****	*****	1.34	*****	*****	2.8	2.42
	BOTTOM	1.62	*****	5.08	*****	*****	*****	2.57	*****	*****	****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE



APPENDIX I, TABLE 9, NANTICOKE 1978

TOTAL ALKALINITY AT LAB MG/L

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	950.	****	****	****	****	****	960.	****	****	****	****
112	11.0	960.	****	****	****	****	****	960.	****	****	****	****
501	1.0	950.	****	****	****	****	****	960.	****	****	977.	37.86
501	12.0	950.	****	****	****	****	****	970.	****	****	****	****
518	3.0	960.	****	****	****	****	****	980.	****	****	****	****
648	1.0	960.	****	****	****	****	****	960.	****	****	****	****
648	7.0	960.	****	****	****	****	****	970.	****	****	****	****
810	1.0	970.	****	****	****	****	****	980.	****	****	****	****
810	8.0	970.	****	****	****	****	****	980.	****	****	987.	20.82
994	1.0	980.	****	****	****	****	****	970.	****	****	990.	26.46
994	7.0	960.	****	****	****	****	****	990.	****	****	987.	25.17
1016	1.0	960.	****	****	****	****	****	980.	****	****	983.	25.17
1016	9.0	960.	****	****	****	****	****	980.	****	****	980.	20.00
1040	3.0	970.	****	****	****	****	****	990.	****	****	990.	20.00
1041	1.0	970.	****	****	****	****	****	990.	****	****	997.	30.55
1041	9.0	970.	****	****	****	****	****	****	****	****	990.	17.32
1042	2.0	980.	****	****	****	****	****	980.	****	****	993.	23.10
MEAN	SURFACE	965.	****	****	****	****	****	975.	****	****	****	****
	BOTTOM	961.	****	****	****	****	****	979.	****	****	****	****
ST DEV	SURFACE	10.81	****	****	****	****	****	11.79	****	****	****	****
	BOTTOM	6.92	****	****	****	****	****	13.46	****	****	****	****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX I, TABLE 10, NANTICUKE 1978

## REACTIVE SILICATE AS SI MG/L

STATION	DEPTH M		APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****													
112	1.0	1	0.15	0.20	0.10	0.15	0.05	0.20	0.20	0.10	0.10	0.14	0.055
112	11.0	1	0.15	0.20	0.15	0.15	0.10	0.20	0.25	0.10	0.10	0.16	0.053
-----													
501	1.0	1	0.15	0.15	0.10	0.10	0.05	0.20	0.25	0.20	0.10	0.14	0.063
501	12.0	1	0.15	0.15	0.20	0.20	0.25	0.20	0.35	0.10	0.10	0.19	0.078
-----													
518	3.0	1	0.15	0.10	0.05	0.15	0.15	0.20	0.30	0.15	0.05	0.14	0.077
-----													
648	1.0	1	0.15	0.20	0.20	0.15	0.05	0.20	0.25	0.10	0.10	0.16	0.063
648	7.0	1	0.15	0.20	0.05	0.15	0.25	0.20	0.25	0.15	0.10	0.17	0.066
-----													
810	1.0	1	0.20	0.10	0.05	0.15	0.15	0.20	0.30	0.15	0.05	0.15	0.079
810	8.0	1	0.20	0.10	0.10	0.20	0.15	0.20	0.30	0.15	0.05	0.16	0.074
-----													
994	1.0	1	0.20	0.10	0.05	0.20	0.10	0.25	0.30	0.25	0.10	0.17	0.087
994	7.0	1	0.15	0.15	0.05	0.15	0.15	0.15	0.35	0.25	0.10	0.17	0.087
-----													
1016	1.0	1	0.20	***	0.10	0.20	0.15	0.20	0.30	0.15	0.05	0.17	0.075
1016	9.0	1	0.20	0.15	0.10	0.30	0.10	0.20	0.30	0.15	0.05	0.17	0.087
-----													
1040	3.0	1	0.20	0.10	0.05	0.35	0.15	0.20	0.35	0.20	0.10	0.19	0.105
-----													
1041	1.0	1	0.20	0.10	0.05	0.15	0.10	0.20	0.35	0.20	0.10	0.16	0.089
1041	9.0	1	0.20	0.10	0.15	0.20	0.15	0.25	0.35	0.20	0.10	0.19	0.078
-----													
1042	2.0	1	0.20	0.10	0.15	0.25	0.10	0.25	0.30	0.25	0.20	0.20	0.071
*****													
MEAN	SURFACE	1	0.18	0.13	0.09	0.18	0.10	0.21	0.29	0.17	0.09	0.16	0.076
	BOTTOM	1	0.17	0.15	0.11	0.19	0.16	0.20	0.31	0.16	0.09	0.17	0.073
-----													
ST DEV	SURFACE	1	0.026	0.044	0.052	0.071	0.044	0.021	0.046	0.054	0.044	0.17	0.075
	BOTTOM	1	0.027	0.041	0.056	0.053	0.063	0.029	0.045	0.053	0.024	****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX I, TABLE 11, NANTICOKE 1978

SECCHI DISK DEPTH M

STATION	DEPTH M	APR. 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
112	1.0	3.6	3.0	3.7	3.8	6.5	2.5	4.5	2.0	1.2	3.4	1.54
112	11.0	****	****	****	****	****	****	****	****	****	****	****
501	1.0	3.9	3.0	3.5	7.0	6.8	2.2	4.2	2.0	1.0	3.7	2.05
501	12.0	****	****	****	****	****	****	****	****	****	****	****
518	3.0	1.9	2.1	2.8	3.0	4.8	1.6	1.6	2.0	0.9	2.3	1.13
648	1.0	3.2	3.2	3.8	4.1	5.5	2.5	4.3	2.0	1.0	3.3	1.34
648	7.0	****	****	****	****	****	****	****	****	****	****	****
810	1.0	1.9	1.7	3.0	2.3	3.2	1.0	1.6	1.5	1.2	1.9	0.76
810	8.0	****	****	****	****	****	****	****	****	****	****	****
994	1.0	1.8	2.5	2.6	3.1	5.5	1.8	4.2	2.5	1.0	2.8	1.36
994	7.0	****	****	****	****	****	****	****	****	****	****	****
1016	1.0	2.5	1.8	2.5	2.9	5.0	1.5	2.9	2.0	1.5	2.5	1.08
1016	9.0	****	****	****	****	****	****	****	****	****	****	****
1040	3.0	1.6	1.5	1.7	2.1	3.2	1.5	1.2	1.5	1.2	1.7	0.62
1041	1.0	1.6	2.5	1.8	2.7	4.5	1.7	2.1	2.0	1.5	2.3	0.93
1041	9.0	****	****	****	****	****	****	****	****	****	****	****
1042	2.0	1.8	1.4	1.7	2.8	4.5	1.4	2.7	1.5	1.0	2.1	1.08
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	SURFACE	2.4	2.3	2.7	3.4	4.9	1.8	2.9	1.9	1.1	2.6	1.35
	BOTTOM	****	****	****	****	****	****	****	****	****	****	****
ST DEV	SURFACE	0.37	0.66	0.80	1.41	1.20	0.49	1.28	0.32	0.21	2.6	1.35
	BOTTOM	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE



## APPENDIX 1. TABLE 12. NANTICOKE 1978

## DISSOLVED OXYGEN MG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
112	1.0	13.7	****	12.6	9.4	****	****	8.3	****	****	11.0	2.56
112	11.0	13.9	****	12.3	9.0	****	****	8.2	****	****	10.8	2.70
501	1.0	13.6	****	12.4	9.4	****	****	8.5	****	****	11.0	2.42
501	12.0	14.0	****	12.4	9.8	****	****	8.0	****	****	11.0	2.67
518	3.0	13.4	****	12.4	9.4	****	****	8.4	****	****	10.9	2.38
648	1.0	13.6	****	12.3	9.6	****	****	8.3	****	****	10.9	2.43
648	7.0	13.8	****	12.5	9.2	****	****	8.3	****	****	10.9	2.62
810	1.0	13.4	****	12.4	9.5	****	****	8.4	****	****	10.9	2.36
810	8.0	13.6	****	12.7	9.2	****	****	8.4	****	****	11.0	2.56
994	1.0	13.2	****	12.7	9.2	****	****	8.8	****	****	11.0	2.30
994	7.0	13.5	****	13.0	9.0	****	****	8.6	****	****	11.0	2.58
1016	1.0	13.6	****	12.4	9.5	****	****	8.3	****	****	10.9	2.47
1016	9.0	13.7	****	12.5	9.3	****	****	8.3	****	****	10.9	2.56
1040	3.0	13.6	****	12.6	9.6	****	****	8.3	****	****	11.0	2.49
1041	1.0	13.4	****	12.2	9.6	****	****	8.4	****	****	10.9	2.30
1041	9.0	13.5	****	12.4	9.3	****	****	8.4	****	****	10.9	2.44
1042	2.0	13.4	****	12.2	9.6	****	****	8.6	****	****	10.9	2.23
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	SURFACE	13.5	****	12.4	9.5	****	****	8.4	****	****	11.0	2.10
	BOTTOM	13.7	****	12.5	9.3	****	****	8.3	****	****	11.0	2.29
ST DEV	SURFACE	0.15	*****	0.17	0.13	*****	*****	0.16	*****	*****	11.0	2.16
	BOTTOM	0.20	*****	0.24	0.27	*****	*****	0.19	*****	*****	11.0	2.16

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX I, TABLE 13, NANTICKE 1978

## DISSOLVED OXYGEN % SATURATION

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	102.	****	113.	101.	****	****	77.	****	****	98.	15.17
112	11.0	103.	****	96.	87.	****	****	76.	****	****	91.	11.68
501	1.0	101.	****	113.	103.	****	****	79.	****	****	99.	14.33
501	12.0	102.	****	97.	88.	****	****	73.	****	****	90.	12.73
518	3.0	110.	****	109.	101.	****	****	78.	****	****	100.	14.89
648	1.0	105.	****	111.	102.	****	****	77.	****	****	99.	14.97
648	7.0	105.	****	107.	92.	****	****	77.	****	****	95.	13.87
810	1.0	108.	****	106.	102.	****	****	79.	****	****	99.	13.40
810	8.0	106.	****	104.	89.	****	****	78.	****	****	94.	13.23
994	1.0	104.	****	112.	100.	****	****	78.	****	****	99.	14.55
994	7.0	105.	****	104.	89.	****	****	75.	****	****	93.	14.20
1016	1.0	106.	****	102.	102.	****	****	75.	****	****	96.	14.29
1016	9.0	107.	****	99.	90.	****	****	76.	****	****	93.	13.29
1040	3.0	109.	****	107.	103.	****	****	77.	****	****	99.	14.88
1041	1.0	105.	****	103.	105.	****	****	76.	****	****	97.	14.20
1041	9.0	105.	****	99.	92.	****	****	76.	****	****	93.	12.52
1042	2.0	107.	****	103.	105.	****	****	77.	****	****	98.	14.09
MEAN	SURFACE	106.	****	108.	102.	****	****	77.	****	****	98.	12.74
	BOTTOM	105.	****	101.	90.	****	****	76.	****	****	93.	11.69
ST DEV	SURFACE	2.91	****	4.31	1.65	****	****	1.25	****	****	96.	12.54
	BOTTOM	1.70	****	4.14	1.90	****	****	1.57	****	****	****	****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX I, TABLE 14 , NANTICOKE 1978

## TOTAL PHOSPHORUS MG/L

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****												
112	1.0	0.013	0.013	0.008	0.010	0.015	0.011	0.009	0.008	0.018	0.012	0.0034
112	11.0	0.013	0.013	0.017	0.013	0.009	0.007	0.010	0.010	0.023	0.013	0.0048
501	1.0	0.011	0.011	0.010	0.010	0.009	0.023	0.006	0.008	0.014	0.011	0.0049
501	12.0	0.010	0.013	0.007	0.014	0.019	0.006	0.008	0.009	0.019	0.012	0.0049
518	3.0	0.010	0.010	0.014	0.015	0.033	0.013	0.009	0.008	0.013	0.014	0.0076
648	1.0	0.009	0.013	0.010	0.007	0.009	0.009	0.007	0.006	0.015	0.009	0.0029
648	7.0	0.015	0.010	0.011	0.013	0.009	0.006	0.006	0.004	0.023	0.011	0.0058
810	1.0	0.009	0.011	0.015	0.014	0.025	0.020	0.011	0.011	0.015	0.015	0.0051
810	8.0	0.016	0.016	0.012	0.015	0.012	0.013	0.009	0.010	0.014	0.013	0.0025
994	1.0	0.012	0.010	0.013	0.014	0.013	0.016	0.009	0.008	0.017	0.012	0.0030
994	7.0	0.023	0.063	0.019	0.021	0.011	0.011	0.010	0.006	0.023	0.021	0.0170
1016	1.0	0.012	0.012	0.016	0.009	0.008	0.018	0.007	0.012	0.035	0.014	0.0085
1016	9.0	0.009	0.013	0.015	0.012	0.066	0.017	0.011	0.020	0.021	0.020	0.0176
1040	3.0	0.014	0.011	0.015	0.016	0.010	0.013	0.013	0.012	0.013	0.013	0.0019
1041	1.0	0.014	0.016	0.018	0.007	0.025	0.012	0.007	0.012	0.015	0.014	0.0056
1041	9.0	0.023	0.008	0.019	0.016	0.100	0.018	0.008	0.016	0.020	0.025	0.0285
1042	2.0	0.010	0.014	0.017	0.012	0.016	0.017	0.007	0.012	0.023	0.014	0.0047
*****												
MEAN	SURFACE	0.011	0.012	0.014	0.011	0.016	0.015	0.008	0.010	0.018	0.013	0.0051
	BOTTOM	0.016	0.019	0.014	0.015	0.032	0.011	0.009	0.011	0.020	0.016	0.0149
ST DEV	SURFACE	0.0019	0.0019	0.0033	0.0033	0.0086	0.0044	0.0022	0.0023	0.0067	0.014	0.0104
	BOTTOM	0.0057	0.0194	0.0045	0.0030	0.0362	0.0051	0.0017	0.0056	0.0033	*****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

APPENDIX 1, TABLE 15 • NANTICOKE 1978

FILTERED REACTIVE PHOSPHORUS MG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	0.007	0.003	0.001	0.001	0.006	0.003	0.002	0.002	0.007	0.004	0.0025
112	11.0	0.007	0.002	0.002	0.002	0.002	0.001	0.002	0.001	0.007	0.003	0.0024
501	1.0	0.006	0.005	0.001	0.001	0.002	0.002	0.001	0.001	0.007	0.003	0.0025
501	12.0	0.006	0.004	0.004	0.002	0.002	0.002	0.002	0.005	0.008	0.004	0.0021
518	3.0	0.005	0.002	0.001	0.002	0.001	0.004	0.002	0.001	0.006	0.003	0.0019
648	1.0	0.003	0.002	0.001	0.002	0.002	0.002	0.005	0.001	0.007	0.003	0.0021
648	7.0	0.004	0.002	0.003	0.002	0.002	0.002	0.002	0.006	0.006	0.003	0.0016
810	1.0	0.003	0.002	0.002	0.002	0.001	0.003	0.003	0.008	0.006	0.003	0.0022
810	8.0	0.005	0.004	0.001	0.005	0.001	0.003	0.003	0.002	0.006	0.003	0.0018
994	1.0	0.003	0.003	0.001	0.002	0.003	0.004	0.002	0.001	0.006	0.003	0.0016
994	7.0	0.013	0.025	0.001	0.002	0.001	0.004	0.003	0.003	0.007	0.006	0.0079
1016	1.0	0.006	0.003	0.001	0.001	0.004	0.004	0.002	0.001	0.003	0.003	0.0018
1016	9.0	0.004	0.001	0.001	0.002	0.001	0.001	0.003	0.001	0.008	0.002	0.0024
1040	3.0	0.004	0.002	0.001	0.003	0.001	0.003	0.002	0.001	0.006	0.003	0.0017
1041	1.0	0.005	0.003	0.001	0.001	0.005	0.002	0.002	0.001	0.003	0.002	0.0018
1041	9.0	0.016	0.003	0.001	0.003	0.001	0.003	0.003	0.003	0.003	0.004	0.0049
1042	2.0	0.004	0.002	0.001	0.001	0.001	0.005	0.002	0.001	0.004	0.002	0.0016
MEAN	SURFACE	0.005	0.003	0.001	0.001	0.002	0.003	0.002	0.002	0.006	0.003	0.0019
MEAN	BOTTOM	0.008	0.006	0.002	0.003	0.001	0.002	0.003	0.003	0.007	0.004	0.0040
ST DEV	SURFACE	0.0014	0.0010	0.0003	0.0007	0.0019	0.0010	0.0011	0.0022	0.0010	0.003	0.0030
ST DEV	BOTTOM	0.0047	0.0085	0.0012	0.0011	0.0005	0.0009	0.0005	0.0019	0.0008	0.003	0.0030

\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX 1, TABLE 16, NANTICKE 1978

## TOTAL KJELDAHL NITROGEN MG/L

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
*****												
112	1.0	0.21	0.34	0.22	0.39	0.53	0.44	0.22	0.30	0.33	0.33	0.109
112	11.0	0.21	0.29	0.25	0.35	0.28	0.27	0.24	0.27	0.29	0.27	0.039
501	1.0	0.21	0.27	0.28	0.33	0.77	0.27	0.22	0.27	0.26	0.32	0.172
501	12.0	0.24	0.51	0.27	0.30	0.43	0.25	0.20	0.27	0.29	0.31	0.099
518	3.0	0.25	0.29	0.26	0.37	0.95	0.27	0.19	0.28	0.27	0.35	0.231
648	1.0	0.26	0.28	0.26	0.30	0.81	0.28	0.22	0.23	0.25	0.32	0.185
648	7.0	0.25	0.25	0.24	0.42	0.47	0.24	0.20	0.21	0.27	0.28	0.095
810	1.0	0.21	0.33	0.26	0.37	0.78	0.42	0.28	0.30	0.32	0.36	0.168
810	8.0	0.22	0.42	0.24	0.33	0.52	0.28	0.24	0.32	0.65	0.36	0.146
994	1.0	0.26	0.27	0.35	0.36	0.71	0.41	0.22	0.32	0.25	0.35	0.148
994	7.0	0.24	0.92	0.35	0.35	0.53	0.35	0.22	0.27	0.27	0.39	0.220
1016	1.0	0.22	0.29	0.26	0.38	0.37	0.45	0.24	0.52	1.44	0.46	0.380
1016	9.0	0.23	0.24	0.26	0.35	0.62	0.36	0.25	0.68	0.75	0.42	0.209
1040	3.0	0.23	0.32	0.27	0.33	0.37	0.33	0.24	0.37	0.33	0.31	0.052
1041	1.0	0.23	0.58	0.28	0.35	0.58	0.34	0.26	0.31	0.39	0.37	0.129
1041	9.0	0.22	0.26	0.25	0.46	0.58	0.26	0.21	0.35	0.55	0.35	0.145
1042	2.0	0.24	0.25	0.28	0.27	0.34	0.32	0.20	0.30	0.31	0.28	0.044
*****												
MEAN	SURFACE	0.23	0.32	0.27	0.34	0.62	0.35	0.23	0.32	0.41	0.35	0.182
	BOTTOM	0.23	0.41	0.27	0.37	0.49	0.29	0.22	0.34	0.44	0.34	0.150
*****												
ST DEV	SURFACE	0.020	0.095	0.033	0.038	0.215	0.071	0.027	0.079	0.363	0.34	0.169
	BOTTOM	0.014	0.245	0.039	0.055	0.112	0.048	0.021	0.157	0.206	****	*****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE



FILTERED NO2 AND NO3 MG/L

[illegible]

FILTERED AMMONIA MG/L

STATION	DEPTH	1 APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	0.012	0.004	0.002	0.010	0.018	0.024	0.008	0.008	0.022	1 0.012	0.0077
112	11.0	0.006	0.006	0.002	0.018	0.016	0.014	0.010	0.010	0.016	1 0.011	0.0055
501	1.0	0.008	0.006	0.014	0.002	0.046	0.020	0.004	0.008	0.024	1 0.010	0.0075
501	12.0	0.010	0.012	0.014	0.026	0.046	0.014	0.008	0.010	0.022	1 0.018	0.0120
518	3.0	0.008	0.004	0.002	0.008	0.016	0.014	0.006	0.008	0.024	1 0.010	0.0069
648	1.0	0.010	0.004	0.010	0.038	0.014	0.016	0.006	0.010	0.016	1 0.013	0.0105
648	7.0	0.006	0.004	0.008	0.012	0.014	0.012	0.012	0.008	****	1 0.009	0.0035
810	1.0	0.006	0.006	0.006	0.016	0.008	0.028	0.014	0.010	0.028	1 0.014	0.0089
810	8.0	0.006	0.012	0.002	0.016	0.026	0.022	0.006	0.010	0.028	1 0.015	0.0115
994	1.0	0.010	0.006	0.008	0.042	0.038	0.036	0.008	0.014	0.014	1 0.020	0.0147
994	7.0	0.008	0.040	0.026	0.034	0.006	0.020	0.010	0.010	0.020	1 0.019	0.0121
1016	1.0	0.010	0.004	0.002	0.008	0.020	0.024	0.008	0.021	****	1 0.012	0.0084
1016	9.0	0.006	0.008	0.002	0.022	0.010	0.098	0.010	0.025	0.044	1 0.025	0.0303
1040	3.0	0.006	0.006	0.006	0.008	0.004	0.024	0.008	0.012	0.042	1 0.013	0.0125
1041	1.0	0.010	****	0.002	0.010	0.008	0.018	0.006	0.010	****	1 0.009	0.0049
1041	9.0	0.010	0.004	0.002	0.022	0.014	0.022	0.014	0.021	****	1 0.014	0.0079
1042	2.0	0.006	0.004	0.002	0.040	0.002	0.024	0.004	0.008	0.018	1 0.012	0.0130
*****												
MEAN	SURFACE	0.009	0.005	0.004	0.017	0.015	0.023	0.007	0.011	0.023	1 0.012	0.0099
	BOTTOM	0.007	0.012	0.008	0.021	0.019	0.029	0.010	0.013	0.028	1 0.016	0.0147
ST DEV	SURFACE	0.0021	0.0011	0.0023	0.0131	0.0135	0.0063	0.0029	0.0041	0.0088	1 0.014	0.0122
	BOTTOM	0.0019	0.0127	0.0092	0.0072	0.0135	0.0308	0.0026	0.0067	0.0122	1 *****	

\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## APPENDIX 1, TABLE 19, NANTICUKE 1978

## CHLOROPHYLL A UG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
	M											
112	1.0	1.7	1.6	2.5	1.7	1.6	1.7	2.1	2.7	2.3	2.0	0.42
112	11.0	****	****	****	****	****	****	****	****	****	****	****
501	1.0	3.3	1.9	2.2	1.6	1.6	1.9	2.1	3.0	1.9	2.2	0.60
501	12.0	****	****	****	****	****	****	****	****	****	****	****
518	3.0	2.5	1.7	3.2	1.9	1.2	2.1	2.3	3.9	2.6	2.4	0.81
648	1.0	2.9	1.3	2.4	1.5	1.3	2.0	1.9	3.1	2.2	2.1	0.65
648	7.0	****	****	****	****	****	****	****	****	****	****	****
810	1.0	2.9	1.6	3.3	2.2	1.2	2.4	2.2	4.1	3.3	2.6	0.91
810	8.0	****	****	****	****	****	****	****	****	****	****	****
994	1.0	2.1	1.3	2.9	1.7	1.7	2.2	1.9	2.7	2.5	2.1	0.52
994	7.0	****	****	****	****	****	****	****	****	****	****	****
1016	1.0	2.2	1.6	4.0	2.1	1.3	2.5	1.9	3.4	3.2	2.5	0.89
1016	9.0	****	****	****	****	****	****	****	****	****	****	****
1040	3.0	2.1	1.6	4.2	2.1	1.2	2.5	2.5	3.6	3.9	2.6	1.04
1041	1.0	2.5	2.2	4.8	2.0	1.2	2.3	1.9	3.2	3.3	2.6	1.05
1041	9.0	****	****	****	****	****	****	****	****	****	****	****
1042	2.0	2.8	1.0	5.3	2.6	1.1	2.3	2.0	3.5	3.9	2.7	1.37
MEAN	SURFACE	2.5	1.6	3.5	1.9	1.3	2.2	2.1	3.3	2.9	2.4	0.86
	BOTTOM	****	****	****	****	****	****	****	****	****	****	****
ST DEV	SURFACE	0.48	0.33	1.06	0.33	0.21	0.26	0.20	0.47	0.71	2.4	0.86
	BOTTOM	****	****	****	****	****	****	****	****	****	****	****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE



## APPENDIX 1, TABLE 20, NANTICUKE 1978

## CHLOROPHYLL B UG/L

STATION	DEPTH M	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	0.3	0.3	0.1	0.4	0.5	0.3	0.4	0.5	0.4	0.4	0.12
112	11.0	****	****	****	****	****	****	****	****	****	****	****
501	1.0	0.5	0.3	0.1	0.4	0.6	0.4	0.5	0.6	0.4	0.4	0.16
501	12.0	****	****	****	****	****	****	****	****	****	****	****
518	3.0	0.4	0.2	0.1	0.3	0.5	0.5	0.5	0.9	0.3	0.4	0.23
648	1.0	0.6	0.3	0.1	0.4	0.6	0.4	0.5	0.4	0.5	0.4	0.16
648	7.0	****	****	****	****	****	****	****	****	****	****	****
810	1.0	0.4	0.2	0.1	0.3	0.5	0.5	0.5	0.6	0.6	0.4	0.18
810	8.0	****	****	****	****	****	****	****	****	****	****	****
994	1.0	0.3	0.3	0.1	0.3	0.6	0.3	0.6	0.4	0.5	0.4	0.16
994	7.0	****	****	****	****	****	****	****	****	****	****	****
1016	1.0	0.4	0.3	0.1	0.4	0.5	0.5	0.4	0.8	0.4	0.4	0.19
1016	9.0	****	****	****	****	****	****	****	****	****	****	****
1040	3.0	0.4	0.2	0.1	0.3	0.4	0.2	0.4	0.7	0.6	0.4	0.19
1041	1.0	0.4	0.8	0.1	0.3	0.6	0.5	0.4	0.6	0.5	0.5	0.20
1041	9.0	****	****	****	****	****	****	****	****	****	****	****
1042	2.0	0.4	0.3	0.1	0.2	0.5	0.4	0.4	0.4	0.4	0.3	0.12
MEAN	SURFACE	0.4	0.3	0.1	0.3	0.5	0.4	0.5	0.6	0.5	0.4	0.17
	BOTTOM	****	****	****	****	****	****	****	****	****	****	****
ST DEV	SURFACE	0.09	0.18	0.0	0.07	0.07	0.11	0.07	0.17	0.10	0.4	0.17
	BOTTOM	****	****	****	****	****	****	****	****	****	****	****

\*\*\*\* MEANS THAT THE RESULT IS NOT AVAILABLE

## TOTAL IRON MG/L

STATION	DEPTH	APR 25	MAY 15	JUN 5	JUL 17	AUG 14	SEP 19	OCT 11	OCT 30	DEC 12	MEAN	ST.DEV.
112	1.0	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.020	0.029
112	11.0	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.020	0.029
501	1.0	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.017	0.075
501	12.0	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.017	0.075
518	3.0	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.029	0.047
648	1.0	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.041	0.047
648	7.0	0.14	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.041	0.047
810	1.0	0.10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.032	0.033
810	8.0	0.10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.032	0.033
994	1.0	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.000	0.024
994	7.0	0.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.000	0.024
1016	1.0	0.13	0.08	0.09	0.09	0.09	0.08	0.08	0.09	0.09	0.024	0.029
1016	9.0	0.01	0.06	0.06	0.06	0.06	0.08	0.08	0.09	0.09	0.024	0.029
1040	3.0	0.04	0.05	0.05	0.05	0.05	0.12	0.12	0.06	0.06	0.037	0.037
1041	1.0	0.22	0.05	0.05	0.05	0.05	0.12	0.12	0.11	0.11	0.080	0.080
1041	9.0	0.20	0.13	0.05	0.05	0.05	0.32	0.32	0.17	0.17	0.080	0.080
1042	2.0	0.31	0.06	0.05	0.05	0.05	0.05	0.05	0.12	0.12	0.128	0.128
MEAN	SURFACE	0.09	0.05	0.05	0.05	0.05	0.08	0.08	0.07	0.07	0.054	0.054
	BOTTOM	0.09	0.07	0.05	0.05	0.05	0.15	0.15	0.09	0.09	0.066	0.066
ST DEV	SURFACE	0.102	0.010	0.013	0.013	0.013	0.029	0.029	0.08	0.08	0.059	0.059
	BOTTOM	0.069	0.029	0.000	0.000	0.000	0.087	0.087	0.08	0.08	0.059	0.059

SUMMARY OF PHYTOPLANKTON DATA AT THIRTEEN SAMPLING STATIONS IN THE NANTICOKE AREA, 1978. ALL RESULTS ARE EXPRESSED AS AREAL STANDARD UNITS PER ML.

TABLE 22

Station	April 25	May 15	June 5	June 27	July 17	Aug. 14	Aug. 30	Sept. 19	Oct. 11	Oct. 30	Dec. 12	MEAN
112	235	492	642	258	375	560	1390	505	414	500	161	503
501	276	562	1273	450	427	315	1093	481	792	541	298	592
518	277	407	869	542	455	326	916	587	679	437	241	521
648	270	688	627	128	345	586	1719	558	546	431	327	566
810	251	345	1195	371	700	646	1441	435	933	618	684	693
994	323	373	974	471	821	768	842	742	899	657	309	653
1016	416	427	1506	566	571	497	1219	783	524	710	391	692
1040	328	292	1829	595	704	834	964	832	907	826	262	761
1041	333	379	1336	381	502	589	1468	397	435	412	287	593
1042	386	587	1857	388	588	677	882	167	446	799	463	658
1085	371	888	1275	513	1046	379	1066	662	1084	877	533	790
1086	489	399	1852	403	375	602	930	167	693	334	536	616
1087	385	350	1274	261	494	445	1377	455	510	441	503	590
MEAN	334	476	1270	410	569	556	1177	521	652	583	384	

(Data provided by G. Hopkins, Limnology and Toxicity Section, M.O.E.)

## APPENDIX 1

TABLE 23 - ADDITIONAL PARAMETERS, NANTICOKE, 1978

	APRIL 25	MAY 15	JUNE 5	JULY 17	AUGUST 14	SEPT. 19	OCT. 11	OCT. 30	DEC. 12
<u>TOTAL CHROMIUM</u>									
Station 112 to 1042	0.04	-	0.02	0.02	-	-	0.02	-	-
1085 to 1087	0.06	-	0.02	0.02	-	-	0.02	-	-
<u>TOTAL COBALT</u>									
Station 112 to 1087	0.06	-	0.02	0.02	-	-	0.02	-	-
<u>TOTAL COPPER</u>									
Station 112 to 1042	0.06	-	0.02	0.02	-	-	0.02	-	-
Station 1085 1.5m	0.02	-	0.01	0.01	-	-	0.01	-	-
Station 1086 1.0m	0.03	-	0.01	0.01	-	-	0.01	-	-
Station 1087 6.0	0.02	-	0.01	0.01	-	-	0.01	-	-
<u>TOTAL LEAD</u>									
Station 112 to 1087	0.05	-	0.03	0.03	-	-	0.03	-	-
<u>TOTAL NICKEL</u>									
Station 112 to 1087	0.004	-	0.002	0.002	-	-	0.002	-	-
<u>TOTAL ZINC</u>									
Station 112 to 1087	0.01	-	0.01	0.01	-	-	0.01	-	-

NOTE: Values are identical at all depths and stations in ranges shown.

Phenols were sampled in every year but 1976, but results always show 1.0 ug/L, the detection limit.

Cyanide was sampled on a single cruise in 1973; it will be included in 1979 and future analyses.



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Date Due


NLR 176